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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JEFFERY S. CHASE, RONALD R. DOYLE,
and STEVEN D. IMS

Appeal 2008-004512
Application 10/733,659
Technology Center 2100

Decided: August 19, 2009

Before LANCE LEONARD BARRY, HOWARD B. BLANKENSHIP, and ST. JOHN COURTENAY III, *Administrative Patent Judges*.

BLANKENSHIP, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1-2, 4-8, 11, 12, and 14-16. The Examiner has indicated that remaining claims 3, 9, 10, and 13 are allowable. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Invention

Appellants' invention is related to a system, method and apparatus for selecting a cache memory allocation to provide an optimized target cache hit rate in a caching component of a content delivery system. The method includes identifying a current cache size and a contemporaneously experienced trace footprint. A hit rate produced in response to the current cache size and the contemporaneously experienced trace footprint is determined and a Zipf alpha coefficient is computed for the current cache size, trace footprint and hit rate. An optimal hit rate is selected and an optimal cache size for the Zipf alpha coefficient, trace footprint and optimal hit rate is computed. Once the optimal cache size has been computed, the cache memory allocation is modified based upon the optimal cache size. (Abstract).

Representative Claims

1. A method for selecting a cache memory allocation to provide an optimized target cache hit rate in a caching component of a content delivery system, the method comprising the steps of:

identifying a current cache size and a contemporaneously experienced trace footprint;

determining a hit rate produced in response to said current cache size and said contemporaneously experienced trace footprint;

computing a Zipf alpha coefficient for said current cache size, trace footprint and hit rate;

selecting an optimal hit rate; and,

further computing an optimal cache size for said Zipf alpha coefficient, trace footprint and optimal hit rate.

7. A system for selecting a cache memory allocation to provide an optimized target cache hit rate in a caching component of a content delivery system, the system comprising a Zipf alpha coefficient parameter computation processor coupled to an optimal cache size computation processor communicatively linked to a cache in the content delivery system.

Prior Art

Workloads: PolyMix-2, (May 29, 2001), http://polygraph.ircache.net/Workloads/PolyMix-2/ ("Polymix").

Examiner's Rejections

Claims 1, 4-6, 11, and 14-16 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Polymix.

Claims 2, 7, 8, and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Polymix.

Claim Groupings

Based on Appellants' arguments in the Appeal Brief, we will decide the appeal on the basis of claims 1 and 7. *See* 37 C.F.R. § 41.37(c)(1)(vii).

ISSUES

(1) Have Appellants shown that the Examiner erred in finding that Polymix describes a "current cache size" and a "contemporaneously experienced trace footprint" as recited in claim 1?

(2) Have Appellants shown that the Examiner erred in finding that a person of ordinary skill in the art, at the time of invention, would have been able to implement the functions taught by Polymix using a general purpose computer processing system?

FINDINGS OF FACT

Polymix

1. Polymix discloses a table with a cache size column listing a cache size of a proxy in each field of the column (Page 4).

2. The table also has a Unif column with a Unif value associated with a corresponding cache size (*id.*).

3. Several Zipf coefficients are associated with each Unif value and the corresponding cache size (*id.*).

Appellants' Specification

4. The Specification states that any kind of computer system, or other apparatus adapted for carrying out the methods described in the Specification, is suited to perform the functions described in the Specification. A typical combination of hardware and software could be a general purpose computer system with a computer program that, when being loaded and executed, controls the computer system such that it carries out the methods described in the Specification. The present invention can also

be embedded in a computer program product, which comprises all the features enabling the implementation of the methods described in the Specification, and which, when loaded in a computer system is able to carry out these methods. (Spec. ¶¶ [0028]-[0029]).

PRINCIPLES OF LAW

Claim Interpretation

During examination, claims are to be given their broadest reasonable interpretation consistent with the specification, and the language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Amer. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (citations omitted). The Office must apply the broadest reasonable meaning to the claim language, taking into account any definitions presented in the specification. *Id.* (citing *In re Bass*, 314 F.3d 575, 577 (Fed. Cir. 2002)).

Anticipation

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). However, anticipation is not an "ipsissimis verbis" test. *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

Obviousness

The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art,

(2) any differences between the claimed subject matter and the prior art, and (3) the level of skill in the art. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007).

ANALYSIS

Claim 1

Appellants contend that claim 1 recites a "current cache size" and a "contemporaneously experienced trace footprint," but the Examiner only addresses a "cache size" and "a trace" without any mention that the cache size is current or that the trace footprint is contemporaneously experienced (App. Br. 4). The Examiner finds that the table on page 4 of Polymix describes cache sizes in the cache size column and trace footprints in the Unif column (Ans. 3), and Appellants do not dispute this finding. The Specification mentions, without explicitly defining, the claim terms "current cache size" (*see* ¶ [0024]) and "contemporaneously experienced trace footprint" (*see* ¶ [0022]).

A cache size in the cache size column of Polymix represents the cache size of a proxy (FF 1). If a proxy has a cache size of 5.0, then the proxy's "current" cache size is shown in the cache size column of Polymix as 5.0. The trace footprint in the Unif column is "contemporaneously experienced" with the corresponding "current" cache size. Therefore, the claim terms "current cache size" and "contemporaneously experienced trace footprint," when read in light of the Specification, are disclosed by Polymix.

The "current" cache size of a proxy can be used to identify a "contemporaneously experienced" trace footprint and Zipf alpha coefficient using the table of Polymix (FF 1-3). For example, if a "current" cache size is identified as 5.0, then a "contemporaneously experienced" trace footprint is identified as 3.4 (*see* FF 1-2). If the hit rate produced by the current cache size and contemporaneously experienced trace footprint is determined to be 4.0, then the Zipf alpha coefficient is 0.2 (*see* FF 3). If a hit rate of 8.5 is desired, then the optimal cache size is 10.0 (*see* Ans. 3). Therefore, Polymix discloses all limitations of claim 1. That Polymix does not contain the terms "current" or "contemporaneously experienced" does not demonstrate error in the Examiner's finding of anticipation, because anticipation is not an "ipsissimis verbis" test. *See In re Bond*, 910 F.2d at 832.

Claim 7

Appellants contend that the Examiner has not provided any factual support in the motivation to combine the method taught by Polymix with the system recited in claim 7 (App. Br. 7; Reply Br. 6). Given that Appellants disclose support for the claimed "system" in terms of a general purpose computer executing software that performs the functions of computing a Zipf alpha coefficient and an optimal cache size (FF 4), and given that Polymix describes the functions of computing a Zipf alpha coefficient and an optimal cache size as discussed above, we find that the Examiner did not need additional evidence to support the prima facie case of using a general purpose computer processing system to perform the method taught by Polymix. Although Appellants contend that the rejection is impermissibly relying on Appellants' teachings of a general purpose computer system,

Appellants have stated that any kind of computer system can be used to perform the claimed functions (FF 4). Therefore, additional evidence describing a general purpose computer system is not needed by the Examiner to support the prima facie case.

CONCLUSIONS OF LAW

(1) Appellants have not shown that the Examiner erred in finding that Polymix describes a "current cache size" and a "contemporaneously experienced trace footprint" as recited in claim 1.

(2) Appellants have not shown that the Examiner erred in finding that a person of ordinary skill in the art, at the time of invention, would have been able to implement the functions taught by Polymix using a general purpose computer processing system.

DECISION

The rejection of claims 1, 4-6, 11, and 14-16 under 35 U.S.C. § 102(b) as being anticipated by Polymix is affirmed.

The rejection of claims 2, 7, 8, and 12 under 35 U.S.C. § 103(a) as being unpatentable over Polymix is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

msc

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